WHAT IS CLAIMED IS:

- 1. An image sensor comprising:
- (a) a plurality of pixels;
- (b) a color filter pattern spanning at least a portion of the pixels, wherein the color filter pattern forms a color filter kernel having colors in a predetermined arrangement; and
- (c) a mechanism for controlling integration time of the pixels, wherein the integration time of the plurality of pixels is spatially variant in a pattern that is correlated with the color filter array kernel.
- 2. The image sensor as in claim 1, wherein the color filter pattern is a Bayer color filter pattern.
- 3. The image sensor as in claim 1, wherein the color filter pattern is a 2x2 kernel.
- 4. The image sensor as in claim 3, wherein the integration time pattern is an alternating pattern of two lines at one integration time and adjacent two lines at a second integration time.
- 5. The image sensor as in claim 3, wherein the integration time for a first set of 2x2 pixels associated with a first kernel is at a first integration time, and the integration time of adjacent 2x2 kernels in the same set of two lines at a second integration time.
- 6. The image sensor as in claim 5, wherein the integration time pattern of adjacent two lines groups is offset by two pixels.
- 7. The image sensor of claim 1 wherein the integration time pattern is a multiple of the color filter kernel.

- 8. An image sensor comprising:
- (a) a plurality of pixels arranged in an array of rows and columns;
- (b) a readout mechanism that provides a series of output signal values associated with a row sync signal with a number of data signal values corresponding to a number of pixels in a row or desired portion of a row; wherein the output signal values have signals that are generated from pixels within at least two physically separate rows within the array.
 - 9. A camera comprising:
 - (a) an image sensor comprising:
 - (al) a plurality of pixels;
- (a2) a color filter pattern spanning at least a portion of the pixels, wherein the color filter pattern forms a color filter kernel having colors in a predetermined arrangement; and
- (a3) a mechanism for controlling integration time of the pixels, wherein the integration time of the plurality of pixels is spatially variant in a pattern that is correlated with the color filter array kernel.
- 10. The camera as in claim 9, wherein the color filter pattern is a Bayer color filter pattern.
- 11. The camera as in claim 9, wherein the color filter pattern is a 2x2 kernel.
- 12. The camera as in claim 11, wherein the integration time pattern is an alternating pattern of two lines at one integration time and adjacent two lines at a second integration time.
- 13. The camera as in claim 11, wherein the integration time for a first set of 2x2 pixels associated with a first kernel is at a first integration time, and

the integration time of adjacent 2x2 kernels in the same set of two lines at a second integration time.

- 14. The camera as in claim 13, wherein the integration time pattern of adjacent two lines groups is offset by two pixels.
- 15. The camera as in claim 1, wherein the integration time pattern is a multiple of the color filter kernel.
- 16. The camera as in claim 9 further comprising a mechanism that reads out at least a subset of the plurality of pixels and uses the signal values obtained from the readout to determine the integration times of the plurality of pixels.
 - 17. A camera comprising:
 - (a) an image sensor comprising:
- (b) a plurality of pixels arranged in an array of rows and columns; and
- (c) a readout mechanism that provides a series of output signal values associated with a row sync signal with a number of data signal values corresponding to a number of pixels in a row or desired portion of a row; wherein the output signal values have signals that are generated from pixels within at least two physically separate rows within the array.
- 18. The camera as in claim 17, wherein the data values are reconstructed in the camera memory.